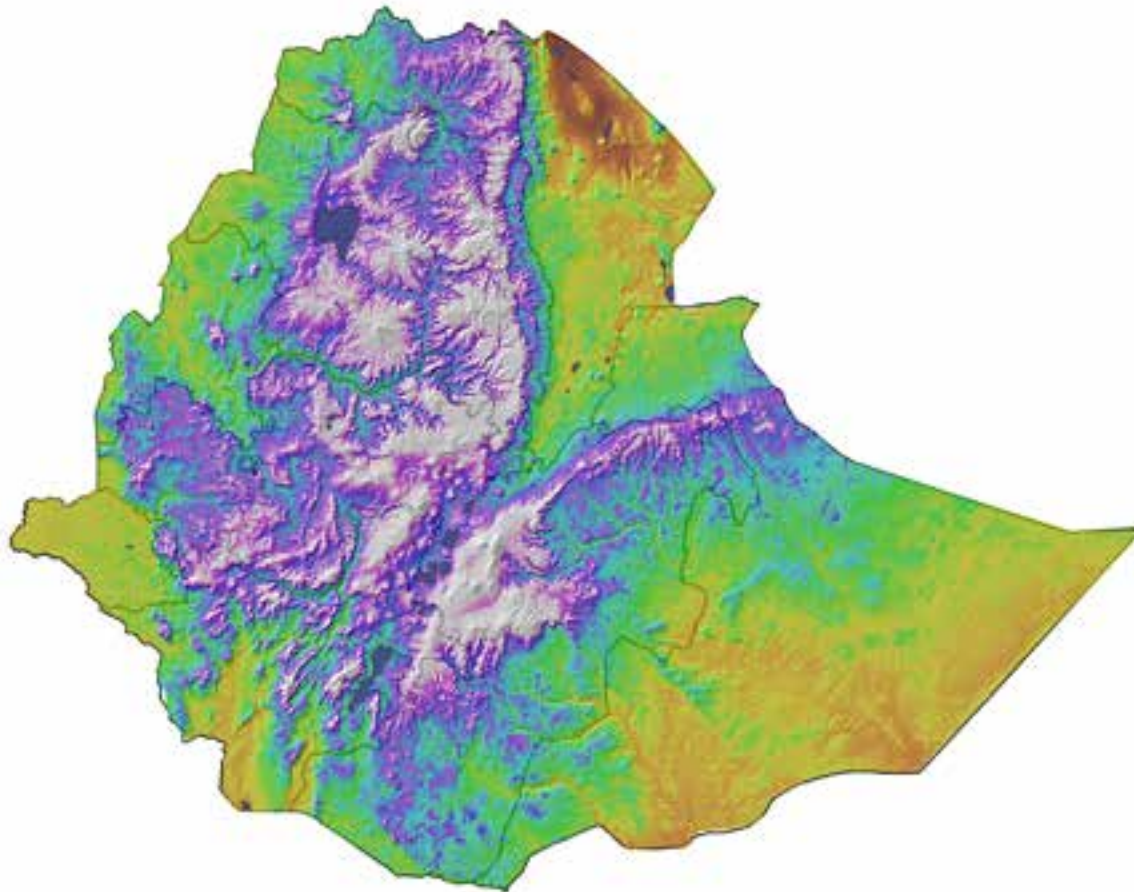


# A Contemporary Geography of Ethiopia

Audrey Hughey – Johnathan Bascom



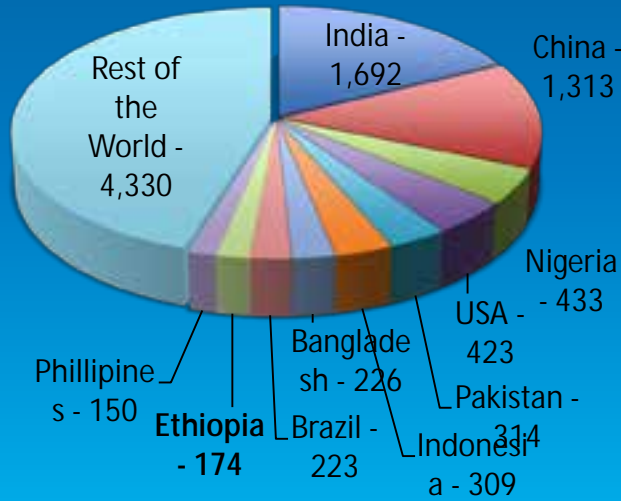
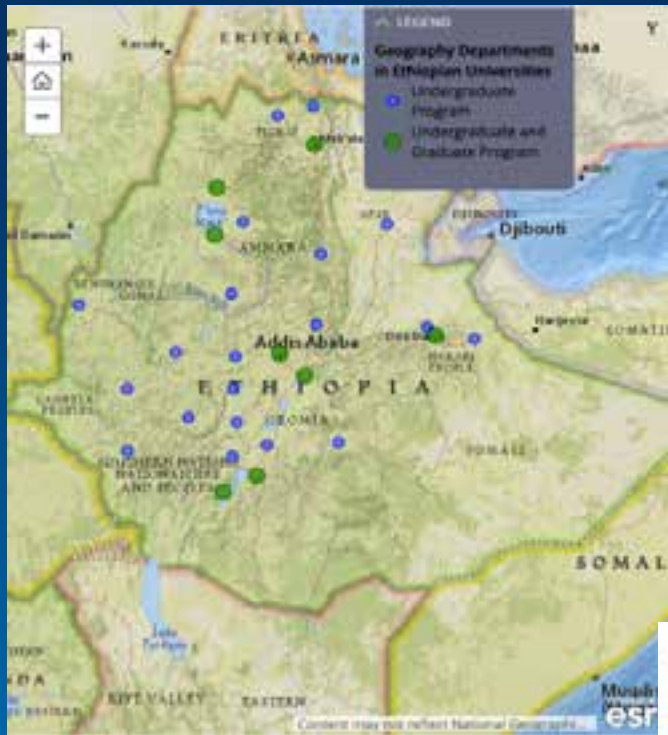


# Fulbright Scholar Program

Administered by the Council for International Exchange of Scholars, a division of the Institute of International Education

1988 1991 1993 1997-98 2001 2003 2005 2010 2011-12 2013



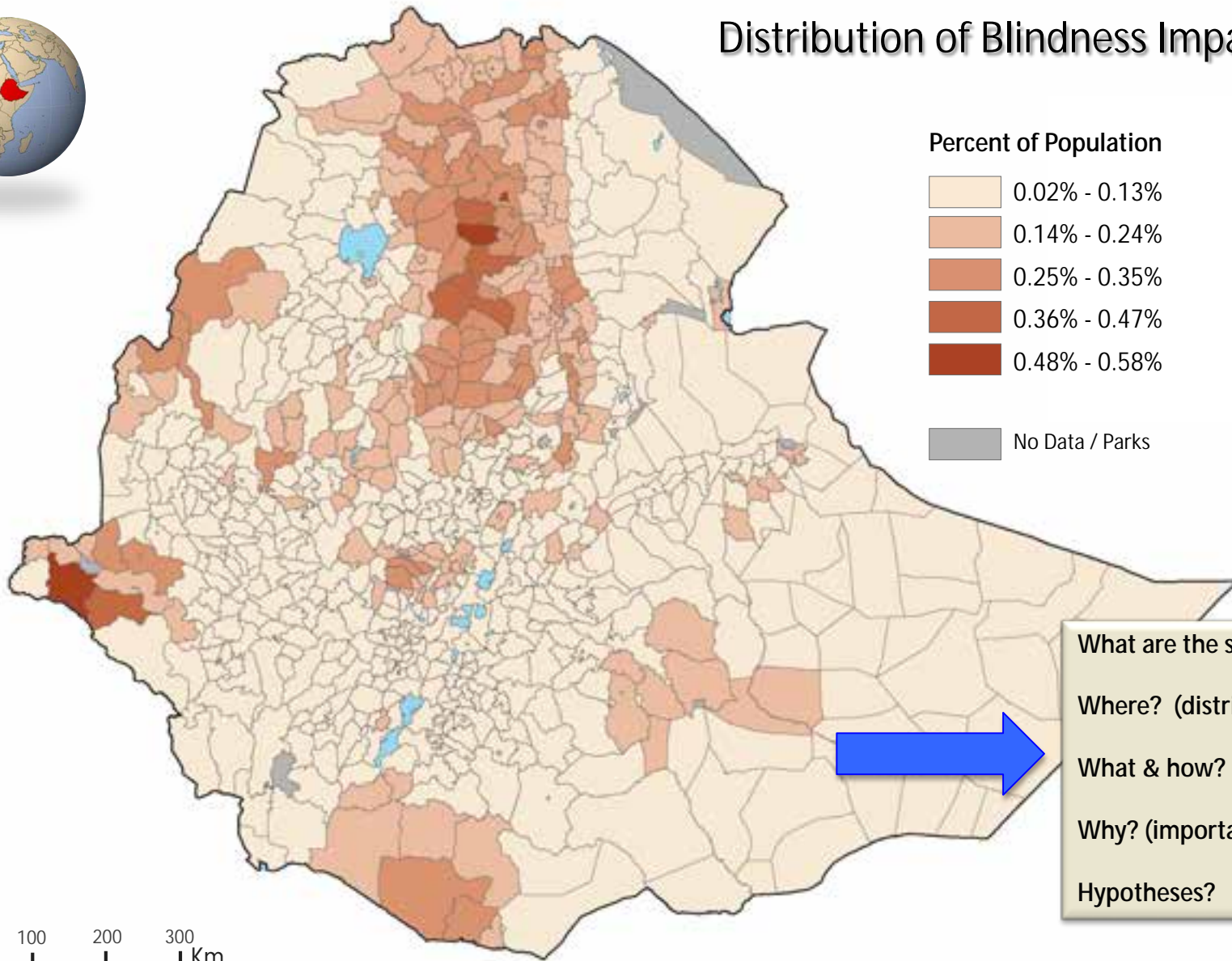


Year/Semester	Module Code	Module Name	Module ECTS	Course Code	Course Title	Course ECTS	Number of Weeks	Course Delivery Mode	Duration Period in Weeks	Remark
Year One Semester One	GeESM	Common Courses I	15	InLa1011	Communicative English Skills	5	2.7			Generic
				ICT1201	Introduction to ICT	5	2.7			Generic
				CEST1021	Civics and Ethical Education	5	2.7			Generic
	GeESM-1011	Climatology and Hydrology	15	GeES1011	Introduction to Climatology	5	2.7	Block		Core
				GeES1012	Applied Climatology	5	2.7	Block		Core
				GeES1013	Environmental Hydrology	5	2.7	Block		Core
<b>Semester Total</b>			<b>30</b>		<b>30</b>					
Year One Semester Two	GeESM-1021	Common Course II	5	InLa1012	Basic Writing Skills	5	16	Parallel		Generic
				Quantitative Geography	10	GeES1021	Maths for Geographer	5	2.7	Block
	Landform Studies	15	GeES1022			Quantitative techniques in Geography and Environmental Studies	5	2.7	Block	
			GeES1031	Geomorphology	5	2.7	Block		Core	
			GeES1032	Soil Geography	5	2.7	Block		Core	
	GeES1033	Terrain Analysis and Land Use planning	5	2.7	Block		Core			
<b>Semester Total</b>			<b>30</b>		<b>30</b>					
<b>YEAR TOTAL</b>			<b>60</b>		<b>60</b>					





# Distribution of Blindness Impairment



What are the stories?  
Where? (distribution)  
What & how? (process)  
Why? (importance)  
Hypotheses?

0 100 200 300 Km

1:7,000,000 Adindan\_UTM\_Zone\_37N

Map boundaries do not have official regional or federal endorsement

## 1.1 INTRODUCTION



**THE SYSTEMATIC STUDY** of a geographical region like Africa, or, a specific country such as Ethiopia can begin with the physical characteristics of its landscape. However, we are choosing to focus first on population geography. Why? First, we want to underscore that it is for the people that the place known as Ethiopia has its primary significance. In short, place derives its significance from people. For that reason, "... geography remains fundamentally anthropocentric, placing humanity at the centre of life on earth" (Van der Merwe and Van der Merwe 2000, 158). Second, consideration of the human impact on the environment – which will be featured at the end of future chapters – requires knowledge about the characteristics of Ethiopia's population.

This chapter examines the growth, distribution, composition, and migration of the Ethiopian population using key concepts and comparative examples at various scales of analysis. We should note that population geography "... differs from demography, that statistical study of human population, in its concern with spatial analysis – the relationship of numbers to area" (Getis, Getis, Fellmann 1996, 182). The end of the chapter considers the implications of Ethiopia's population story upon its resource base, food supply, and health, which are fundamental expressions of the human-environmental relationships that lie at the heart of geographic inquiry.

**POPULATION CHANGE** – whether it is one of growth or decline – is the result of interaction between three processes: births, deaths, and migration. According to the latest estimates, world population is expected to increase from 6.83 billion in 2010 to 9.6 billion in 2050. This represents a steady slowing of the global rate from its all-time peak of 2.19% per year in 1963 to an estimated 0.49% in 2049 (USCB 2008). The current rate of global population increase is 1.2% per annum (PRB 2011). By comparison, Africa's growth rate is 2.6%. The 1,051 billion people on the continent of Africa, which now represent 15.0% of the globe's population (2011), is expected to rise to 1.8 billion in 2050 (Woa 2008).

The primary reason for Africa's high growth rate is because its average fertility rate is much higher than its death rate. (Rates simply record the frequency of occurrence of an event during a given time frame for a designated population.) The crude birth rate is the most common fertility measure. Africa's average birth rate of 36 births per 1,000 people per year is much higher than its death rate of 12 deaths per 1,000, which thus yields a rate of natural increase of 2.4% (PRB 2011). How does Ethiopia's rate of natural increase compare to that of Africa as whole? Its birth rate is estimated at 37 and its death rate at 10, which yields a natural increase rate of 2.7% (PRB 2011).

Every country's population growth rate has very important and practical implications, although for different reasons. Here are some of the primary implications associated with high rates of growth in the case of Ethiopia. Can the national food supply be grown as fast as population? How can an adequate number of teachers, schools, and learning tools be ensured so as to educate Ethiopia's children, given that 44% of the country's population is under the age? And can real economic growth continue to exceed the population growth rate of 2.7% and thus, be sustained over the coming decades so as to maintain the current living standards, much less to raise them? Most other African countries face the same fundamental challenges. Significantly, it is the answers to such questions, which constitute the basic components of any government's social contract with its people. Applied to the case of Ethiopia, it is the real and perceived answer to such questions by which the Ethiopian people have, and, will be expected to judge their government.



# Ethiopia Geography Online

Addis Ababa University

Bahir Dar University

Dilla University

Haramaya University

Gondar University

Mekele University



Digital  
Atlas  
Workshop





# Ethiopia Geography Online

<http://ethiopiageo.maps.arcgis.com/home/index.html>

## EGO feature content



**Potential Vegetation of Ethiopia**



**The Rural Facilities and Services Data Set**



**Ethiopian Geospatial Data**



**A Contemporary Geography of Ethiopia: Introduction**

## Goal #1:

### To publish a new geography of Ethiopia

This digital book will be "published" online and grow as a collaborative project over time.

The online book – *A Contemporary Geography of Ethiopia* – will support the delivery of the recently harmonized geography curriculum for the geography departments at 30 different Ethiopian universities.

The ultimate goal is to produce a book with a chapter for each of 22 geography courses that comprise the curriculum for university-level geography in Ethiopia.



# Chapter 1: Population

A Contemporary Geography of Ethiopia

## Chapter 1: Population

THE SYSTEMATIC STUDY of a geographical region like Ethiopia often begins with the physical characteristics of its landscape. However, we are choosing to focus first on population geography. Why? First, we want to underscore that it is for the people that the place known as Ethiopia has its primary significance. In short, places derive their significance from people. For that reason, "... geography remains fundamentally anthropocentric, placing humanity at the centre of life on earth".<sup>(1)</sup> Second, consideration of the human impact on the environment - which will be featured later - requires knowledge about the distribution and characteristics of Ethiopia's population.

This chapter will examine the size, growth, distribution, composition and migration of the Ethiopian population using key concepts and comparative examples at different scales of analysis. We should note that population geography "...differs from demography, the statistical study of human population, in its concern with spatial analysis - the relationship of numbers to area".<sup>(2)</sup> The conclusion of this chapter considers the implications of Ethiopia's population upon its resource base, food supply and health, each of which are fundamental expressions of the human-environment relationships that lie at the heart of geographic inquiry.

### World Population Growth

THE CONTINENT OF AFRICA is home to 1.1 billion people. This represents 14% of the world's population. And Ethiopia is one of four countries that significantly exceed the population size of the other 189 least countries on the continent.



## Goal #2:

To illustrate the utility of an interactive online text to a university curriculum in a developing country.

This project relies on three features available with Esri's ArcGIS Online – intelligent web maps, templates for storytelling-with maps and a new Map Journal app – to facilitate the construction of a geography textbook.

The chapters are bundles of related maps coupled with narrative, which explain them in adjacent windows.

# Chapter 1: Population

<http://arcg.is/1NDqDIR>

A Contemporary Geography of Ethiopia

Edit

## Chapter 1: Population

### World Population Growth

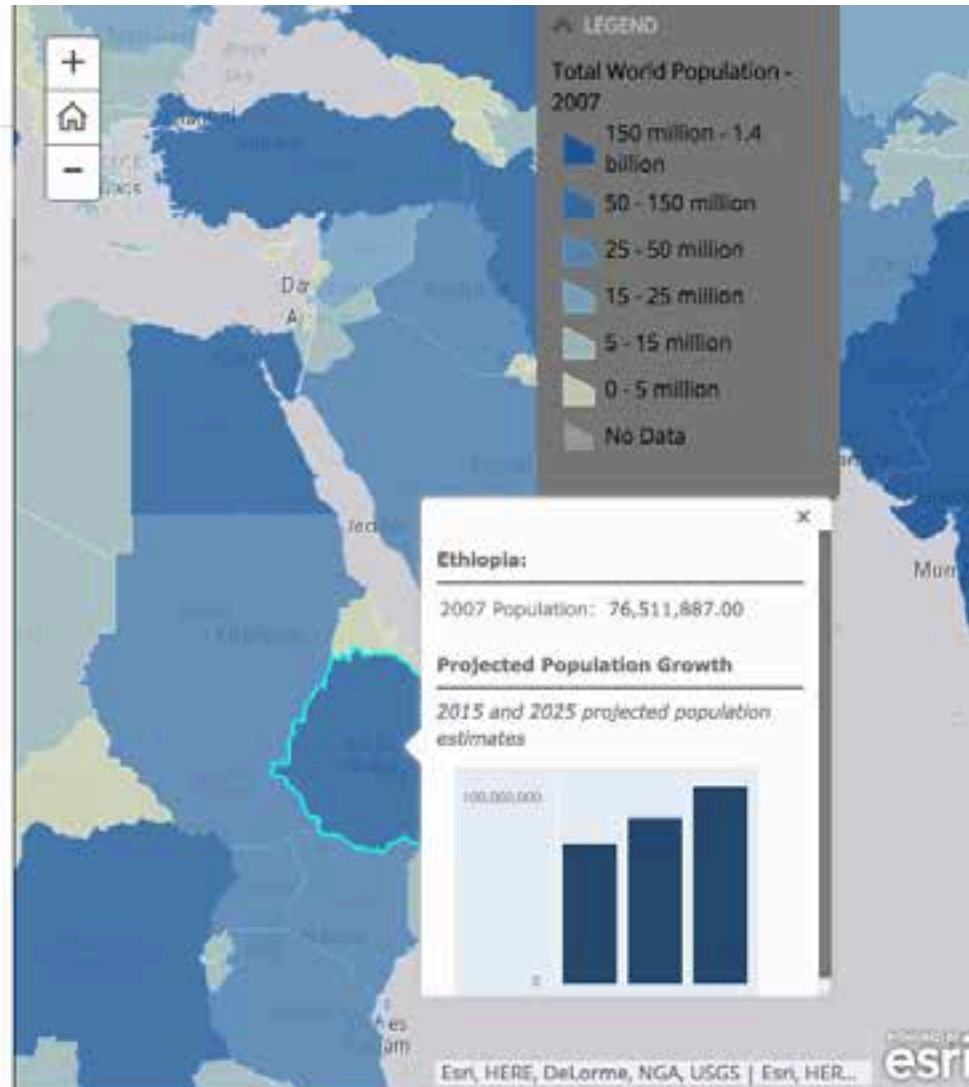
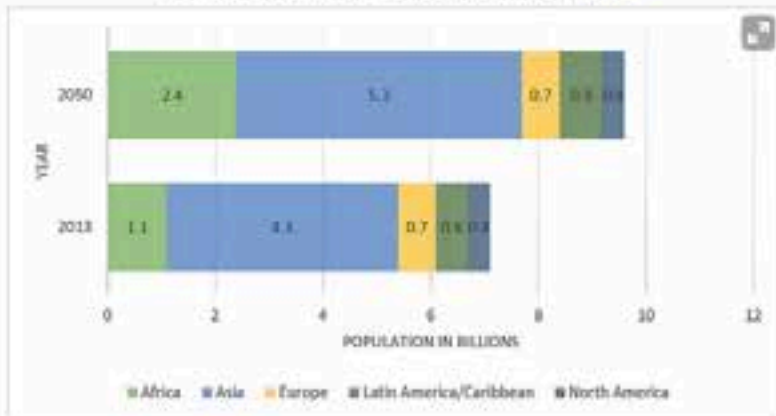
THE CONTINENT OF AFRICA is home to 1.1 billion people. This represents 15% of the world's population. And Ethiopia is one of four countries that significantly exceed the population size of the other fifty-two countries on the continent.

Explore the popups in the right panel map to find out more - Population Totals

*How does Ethiopia's population compare in size to that of the other three countries with large populations?*

As seen in the graph below, the Population Reference Bureau estimates that Africa will add more people than any world region in the first half of the 21st century. The addition of 1.3 billion will even exceed that of population-giant Asia.

Predicted World Region Population Growth by 2050





# Potential Vegetation of Ethiopia

A Contemporary Geography of Ethiopia



## Potential Vegetation of Ethiopia

### Desert and Semi-Desert Scrubland (DSS)

Highly drought tolerant shrubs, some succulents and a few grasses characterize desert and semi-desert scrubland vegetation. The flora has developed advanced xeromorphic adaptations. Shrubs and trees have developed dwarf growth and have small, sclerenchymatic or pubescent leaves. They have adapted resistance to browsing through thorns and development of alkaloid content (secondary metabolites). The vegetation is very scattered above the ground with well-developed, deep root systems.

Tertiary and quaternary volcanics cover the area. Colluviums from the plateau, aeolian and marine deposits also contribute to surface materials. In general, soil types in the area vary depending on location and altitude. Vertisols, Cambisols, Calcisols, Gypsisols, Lithosols, Regosols, Solonchaks and Fluvisols can all be found in this ecosystem. The topsoil is very often highly salty, thus prompting the development of salt tolerance in vegetation. The desert and semi-desert ecosystem is important for its wealth of endemic plant species. The flora of the Ogaden region is one of the richest compared to other dry areas of the world.

True desert occurs only in the northeast in the Danakil Depression. Semi-desert is found in the northeastern parts of the country (Afar), Lake Chew Bahir, Ormo delta in the Southern Nations, Nationalities and Peoples' Region and the southeastern and eastern parts of the country, which largely encompasses the Somali region.

Desert and semi-desert scrubland vegetation is found below 400 meters in eastern Ethiopia and characterized by the presence of small trees, shrubs and herbs. Most of the plants survive through water shortage and extremely high temperature using adaptation strategies such as being annual



**Goal:** To illustrate the gradient of ecosystems from sea level to the Afro-alpine region

**Data Source:** Potential Vegetation of Ethiopia



# Potential Vegetation of Ethiopia

A Contemporary Geography of Ethiopia

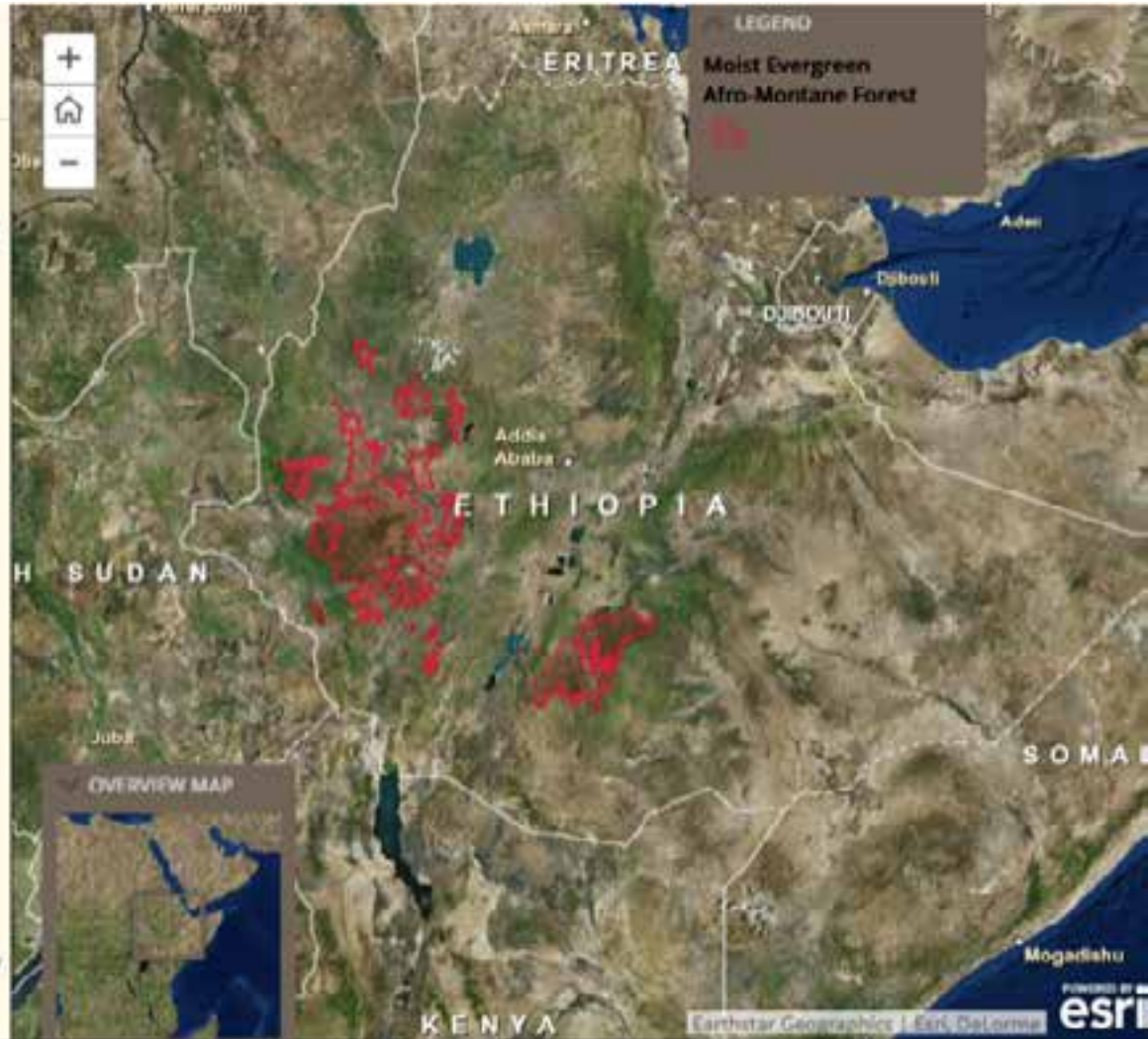
## Potential Vegetation of Ethiopia

### Moist Evergreen Afro-Montane Forest (MAF)

The moist evergreen Afromontane forest ecosystem of Ethiopia is found mostly in the southwestern highlands at altitudinal ranges between 1500 and 2600 meters. The range is slightly wider at the southern portion of the Bale Mountains - 1450 to 2700 meters.



Moist evergreen Afromontane forest featuring juniperus procera along Highway II enroute to Robe



**Goal:** To illustrate the gradient of ecosystems from sea level to the Afro-alpine region

**Data Source:** Potential Vegetation of Ethiopia

# Geology Field Trip

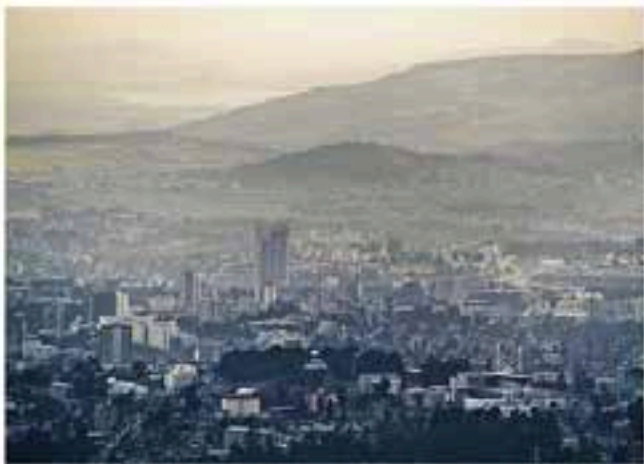
A Contemporary Geography of Ethiopia

## Ethiopia Geology Field Trip

Addis Ababa (0 km) to Debre Berhan (130 km)

[Explore the Elevation Profile of this Segment](#)

Addis Ababa is located at an average altitude of 2,500 meters, making it one of the highest capitals in the world. (All meter designations in this roadtrip refer to meters above sea level.) Addis is built on trough-like volcanic terrain that is bounded by young volcanic mountain chains and peaks, which rise up to more than 3,000 meters – Mount Entoto and Yeka on the north and northeast, Mount Yerer to the southeast, and Mounts Wochecha and Furi to the west.



View of downtown Addis Ababa from Mount Entoto, the highest mountains in the area (3,200 meters), which flanks the north side of the city. [Photo Credit](#)

**Goal:** To provide an field trip itinerary for geology classes at universities along Highway 1

**Method:** Map segments and observation points along Highway 1



## Goal #3:

To demonstrate the value of storytelling maps as a method for learning, teaching and doing geography.

Helping change the culture of learning and teaching is a central aim of this project.

Although lecturing and rote memorization are the normative modes in most developing countries like Ethiopia, teaching by way of interactive story maps will help transform the relatively passive pedagogy.

Our aim is to supply both professors and students with Ethiopian spatial data, steer their interaction with that data, assist them to build web maps with storytelling templates that substantiate the geographic story associated with a given map.

# “Data Poverty”

Famine = Poor production and Poor distribution







**Data Wealth**



A Contemporary Geography of Ethiopia

## Ethiopian Geospatial Data

The Rural Economy Data Set was compiled through the 2001-02 Ethiopian Agricultural Sample Enumeration (EASE). Data were collected by the Central Statistical Agency. EASE questionnaires were administered to more than 450,000 households in Ethiopia. The entire country is covered with the exception of woredas within the extensively urbanized city of Addis Ababa as well as most of the Afar and Somali regions where nomadic pastoralism dominates given the lack of sufficient rainfall for crop agriculture.

Use the three tabs below to determine which 464 woredas are included in the Rural Economy Data Set.

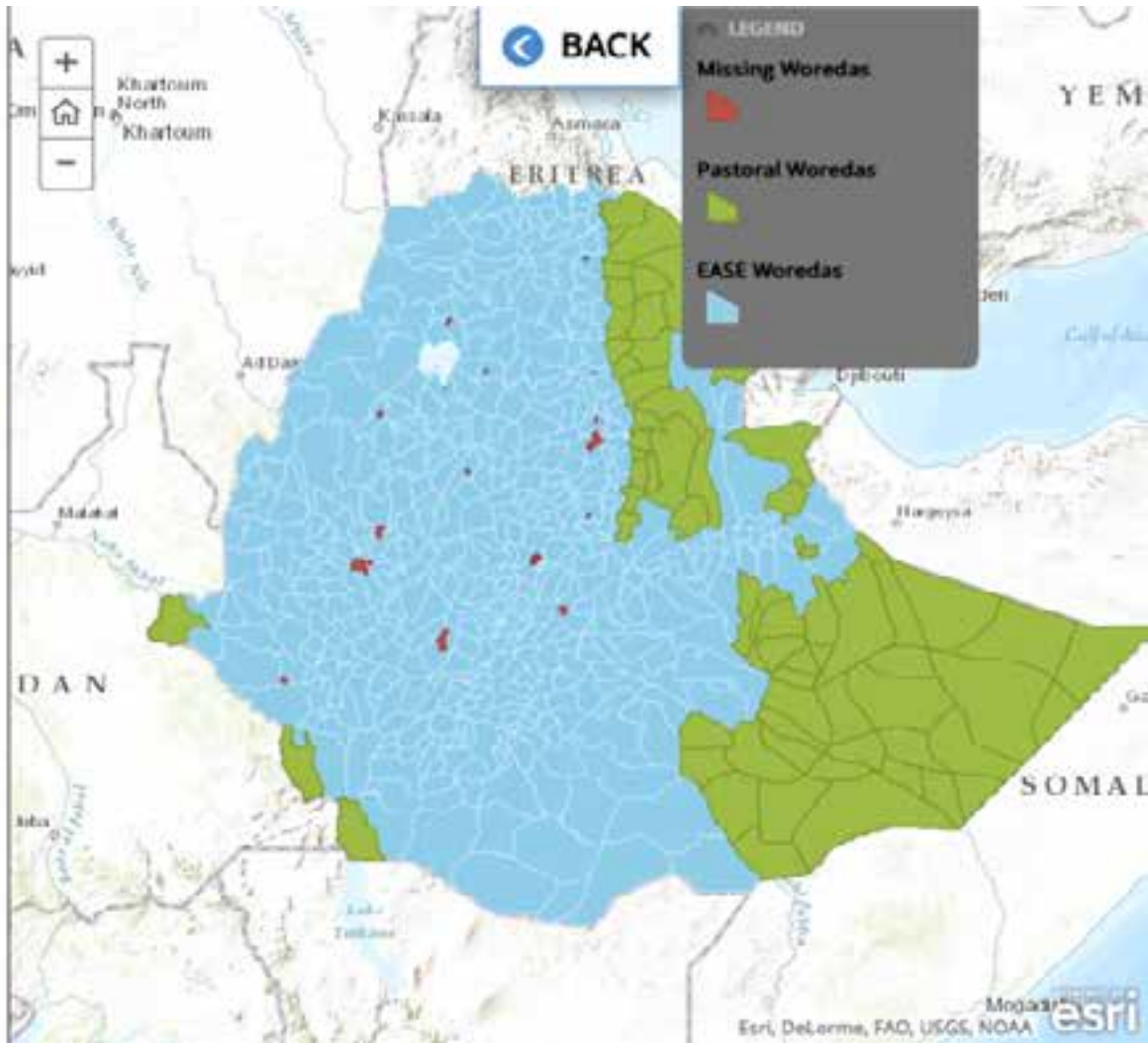
**Missing 17 Woredas**

**Pastoral woredas with limited data**

**EASE Woredas**

Using The Rural Economy Data Set is quite simple. The primary ID codes are located (AFA, WOLA) these six digit ID codes are used to woreda names at 2001-02 survey were conducted for EASE. These IDs are associated with the 464 woredas included in the EASE survey. They are listed by 275 different WARDSES, CORPORSING INTO DISTRICTS.

- |                               |                 |
|-------------------------------|-----------------|
| 1. 1st digit is regional code | 8. Woreda       |
| 2. 2nd digit is province code | 9. Zone         |
| 3. 3rd digit is zone code     | 10. Woreda name |
| 4. 4th digit is woreda code   | 11. Zone name   |
| 5. 5th digit is woreda name   | 12. Province    |



# Open Data

<http://data.ethiopiageo.opendata.arcgis.com/>



Ethiopia Geography Online

Search for open data



SEARCH WITHIN MAP

My Activity



## Features:

- Download data in multiple formats
- Visualize data in browser
- Filter data for download

## Featured Data Sets:

[Rural Facilities](#)

[Rural Economy](#)

## Recently Added Data



[Rural Facilities  
Wealth  
Breakdown  
and Assets  
Database](#)



[Rural Facilities  
Summary](#)

This is a summary of  
the Rural Facilities  
data for Ethiopia.



The goal is for professors and students to become cartographic authors.

The power of such an approach is that it moves students into active learning, critical thinking and problem-solving modes.

A cloud-accessed text allows for expansion, unlimited color graphics, portals to related sites and more.

*A Contemporary Geography of Ethiopia* will be the first interactive, online geography textbook for university use in an African country.

## Acknowledgements

The vision and commitment of Jack Dangermond while in Addis Ababa, Ethiopia

The financial support of Esri

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